

What is claimed is:

1. A projection screen, comprising:
a substrate; and
5 a light selective reflection layer which is formed on one side of the substrate, which has the reflection characteristics in relation to lights in specific wavelength bands, and which has the absorption characteristics in relation to lights other than the lights in the specific wavelength bands.
2. A projection screen according to claim 1, wherein the light selective
10 reflection layer has reflection of 70% or more in relation to the lights in the specific wavelength bands, and has absorptance of 80% or more in relation to the lights other than the lights in the specific wavelength bands.
3. A projection screen according to claim 1, wherein the light selective reflection layer is an optical multilayer film made by alternately layering
15 metal films and dielectric films.
4. A projection screen according to claim 3, wherein the metal films are made of Nb, Al, or Ag.
5. A projection screen according to claim 3, wherein the dielectric films are made of Nb₂O₅, TiO₂, Ta₂O₅, Al₂O₃, or SiO₂.
- 20 6. A projection screen according to claim 3, wherein the light selective reflection layer has constitution made by sequentially layering a first metal film made of Nb, a first dielectric film made of Nb₂O₅, a second metal film made of Nb, and a second dielectric film made of Nb₂O₅.
7. A projection screen according to claim 3, wherein the light selective

reflection layer has constitution made by sequentially layering a first metal film made of Al, a first dielectric film made of Nb_2O_5 , a second metal film made of Nb, and a second dielectric film made of Nb_2O_5 .

8. A projection screen according to claim 1, wherein the substrate is
5 made of polymeric materials.

9. A projection screen according to claim 8, wherein the polymeric materials are polycarbonate, polyethylene terephthalate, polyethylene naphthalate, polyether sulfone, or polyolefin.

10. A projection screen according to claim 1, wherein a light diffusion
10 layer is provided on the light selective reflection layer on the side opposite to the substrate.

11. A projection screen according to claim 1, wherein a light diffusion part, having a plurality of convex parts or a plurality of concave parts is provided on the surface where the light selective reflection layer is formed on
15 the substrate.

12. A projection screen according to claim 1, wherein the specific wavelength bands include each wavelength band of red light, green light, and blue light.

13. A projection screen according to claim 1 comprising an angle
20 correction layer which is formed on the light selective reflection layer on the side opposite to the substrate, and which allows lights to enter in a direction perpendicular to the surface of the light selective reflection layer.

14. A projection screen according to claim 13, wherein the light selective reflection layer has reflectance of 80% or more in relation to the

lights in specific wavelength bands, and transmittancy of 80% or more in relation to at least the lights in the visible wavelength band other than the lights in the specific wavelength bands.

15 15. A projection screen according to claim 13, wherein the light selective reflection layer is made of solvent materials.

16. A projection screen according to claim 15, wherein solvent materials for the light selective reflection layer is cured by heating or illuminating ultraviolet.

10 17. A projection screen according to claim 16, wherein the light selective reflection layer is an optical multilayer film made by alternately layering high refractive index films and low refractive index films having lower refractive indices than that of the high refractive index films.

18. A projection screen according to claim 13, wherein the angle correction layer is processed in the shape of a Fresnel lens.

15 19. A projection screen according to claim 13, wherein the substrate is black and has a function as a light absorption layer.

20. A projection screen according to claim 13, wherein the substrate is transparent, and has a light absorption layer made of blacking on the substrate on the side opposite to the light selective reflection layer.

20 21. A projection screen according to claim 13, comprising a light diffusion layer on the angle correction layer on the side opposite to the light selective reflection layer.

22. A projection screen according to claim 21, wherein the light diffusion layer is a film.

23. A method of manufacturing a projection screen, including a step of forming a light selective reflection layer having the reflection characteristics in relation to specific wavelength bands and having the absorption characteristics in relation to the lights other than the specific wavelength bands lights on a substrate by using sputtering.

24. A method of manufacturing a projection screen according to claim 23, wherein the light selective reflection layer has reflectance of 70% or more in relation to the lights in specific wavelength bands, and absorptance of 80% or more in relation to the lights other than the specific wavelength bands lights.

25. A method of manufacturing a projection screen according to claim 23, wherein the light selective reflection layer is an optical multilayer film made by alternately layering metal films and dielectric films.

26. A method of manufacturing a projection screen according to claim 25, wherein the metal films are made of Nb, Al, or Ag.

27. A method of manufacturing a projection screen according to claim 25, wherein the dielectric films are made of Nb₂O₅, TiO₂, Ta₂O₅, Al₂O₃ or SiO₂.

28. A method of manufacturing a projection screen according to claim 25, wherein the light selective reflection layer has constitution made by sequentially layering a first metal film made of Nb, a first dielectric film made of Nb₂O₅, a second metal film made of Nb, and a second dielectric film made of Nb₂O₅.

29. A method of manufacturing a projection screen according to claim

25, wherein the light selective reflection layer has constitution made by sequentially layering a first metal film made of Al, a first dielectric film made of Nb_2O_5 , a second metal film made of Nb, and a second dielectric film made of Nb_2O_5 .

5 30. A method of manufacturing a projection screen according to claim 23, wherein the substrate is made of polymeric materials.

31. A method of manufacturing a projection screen according to claim 30, wherein the polymeric materials are polycarbonate, polyethylene terephthalate, polyethylene naphthalate, polyether sulfone, or polyolefin.

10 32. A method of manufacturing a projection screen according to claim 23, wherein a light diffusion layer is formed on the light selective reflection layer.

33. A method of manufacturing a projection screen according to claim 23, wherein a light diffusion part having a plurality of convex parts or a
15 plurality of concave parts is formed on a surface of the substrate.

34. A method of manufacturing a projection screen according to claim 23, wherein the specific wavelength bands contain each wavelength band of red light, green light, and blue light.

35. A method of manufacturing a projection screen according to claim
20 23 comprising the step of forming an angle correction layer, which allows the lights to enter in a direction perpendicular to a surface of the light selective reflection layer, on the light selective reflection layer.

36. A method of manufacturing a projection screen according to claim 35, wherein the light selective reflection layer has reflectance of 80% or more

in relation to the lights in specific wavelength bands, and transmittancy of 80% or more in relation to at least the lights in the visible wavelength band other than the lights in the specific wavelength.

37. A method of manufacturing a projection screen according to claim
5 35, wherein the light selective reflection layer is made of solvent materials.

38. A method of manufacturing a projection screen according to claim 37, wherein solvent materials for the light selective reflection layer is cured by heating or illuminating ultraviolet.

39. A method of manufacturing a projection screen according to claim
10 38, wherein the light selective reflection layer is an optical multilayer film made by alternately layering high refractive index films and low refractive index films having lower refractive indices than that of the high refractive index films.

40. A method of manufacturing a projection screen according to claim
15 35, wherein the angle correction layer is processed in the shape of the Fresnel lens.

41. A method of manufacturing a projection screen according to claim 35, wherein the substrate is black and has the function as a light absorption layer.

20 42. A method of manufacturing a projection screen according to claim 35, wherein the substrate is transparent, and a light absorption layer made of blacking is formed under the substrate.

43. A method of manufacturing a projection screen according to claim 35 comprising a step of forming a light diffusion layer on the light reflection

layer.

44. A method of manufacturing a projection screen according to claim 43, wherein the light diffusion layer is a film.